

General Disclaimer

One or more of the Following Statements may affect this Document

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.
- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.
- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.
- This document is paginated as submitted by the original source.
- Portions of this document are not fully legible due to the historical nature of some of the material. However, it is the best reproduction available from the original submission.

"Made available under NASA sponsorship
to the interest of early and wide dis-
semination of Earth Resources Survey
Program information and without liability
for any use made thereof."

RECEIVED
NASA STI FACILITY
ACQ. BR.

MAR 05 1976

DCAF# 1019452
1 2 3 4 5

28990 Investigation of Environmental
Change Pattern in Japan
(Classification of Shorelines)

E7.6-10.17.0.
CR-144370

Dr. Daitaro SHOJI

Co-Investigator

Chief Hydrographer
Hydrographic Department
Maritime Safety Agency

Tsukiji 5-3-1, Chuo-ku
Tokyo, Japan

(E76-10170) INVESTIGATION OF ENVIRONMENTAL
CHANGE PATTERN IN JAPAN: CLASSIFICATION OF
SHORELINES Quarterly Report (Science Univ.
of Tokyo (Japan).) 8 p HC \$3.50 CSCL 08J

N76-18591

Unclas
G3/43 00170

Quarterly Report

Original photography may be purchased from:
EROS Data Center
10th and Dakota Avenue
Sioux Falls, SD 57198

February 3, 1976

eto
Tababazu Maruyasu PI

"Made available under NASA sponsorship
in the interest of early and wide dis-
semination of Earth Resources Survey
Program information and without liability
for any use made thereof."

RECEIVED
NASA STI FACILITY
ACQ. BR.

MAR 05 1976

SCAF# 1019452
1 2 3 4 5

28990 Investigation of Environmental
Change Pattern in Japan
(Classification of Shorelines)

E7.6-10170
CR-146370

Dr. Daitaro SHOJI

Co-Investigator

Chief Hydrographer
Hydrographic Department
Maritime Safety Agency

Tsukiji 5-3-1, Chuo-ku
Tokyo, Japan

(E76-10170) INVESTIGATION OF ENVIRONMENTAL
CHANGE PATTERN IN JAPAN: CLASSIFICATION OF
SHORELINES Quarterly Report (Science Univ.
of Tokyo (Japan).) 8 p HC \$3.50 CSCL 08J

N76-18591

Unclas
G3/43 00170

Quarterly Report

Original photography may be purchased from:
EROS Data Center
10th and Dakota Avenue
Sioux Falls, SD 57198

February 3, 1976

eto
Tababayan Manayasan RI

Classification of Shorelines

Dr. Daitaro SHOJI
Chief Hydrographer

Hydrographic Department
Maritime Safety Agency

Tsukiji 5-3-1, Chuo-ku
Tokyo, Japan

1. Introduction

Coastlines were classified into artificial coastlines (mainly reclaimed lands) and natural coastlines. In addition, efforts were made to disclose the situation of reclaimed lands.

Nowadays, projects of reclamation in the sea are undertaken in various parts of Japan, so that very useful and up-to-date information would be obtained if those situations would be made known by the LANDSAT MSS data.

2. Techniques

Some images of the approaches to Ise Bay taken on September 11th, 1975, were selected from among several images received. The selected images are of excellent quality with little coverage of clouds.

There are many reclaimed lands along the head of Ise Bay (Fig.1-A), while the coast along Kumano Nada Sea shows a rias coast (Fig.1-B) and the coast of Enshu Nada Sea shows a monotonous sandy beach (Fig.1-C). Accordingly, the area of Ise Bay and its vicinity was selected as the most suitable test site.

Qualitative analysis on black-and-white bulk positives, as many researchers already reported, is quite useful for classification of coastlines (Fig.2).

Generally, the coastline becomes more monotonous as the composition of materials changes from coarse to fine grain. On the other hand, the coastline of a reclaimed land is mostly close to a straight line.

The situation of reclamation can be known by the density of image in band 7 and the distribution of muddy sea water in the vicinity of the reclaimed land in band 4 (Fig.3).

The sea fronting a rias coast is deep, so that the image of band 7 shows the exact coastline. In the case of a sandy beach, however, it is

ORIGINAL PAGE IS
OF POOR QUALITY

difficult to identify the coastline from band 7 because the osmosis of sea water to sand changes according to the condition of the sandy beach.

As band 4 and band 5 have an image of muddy sea water, it is also difficult to identify the coastline.

3. Accomplishments

- a) Band 7 image (Fig.4) shows the state of the reclaimed lands at the head of Ise Bay very well.
- b) Comparison of band 4 (Fig.5) with band 7 (Fig.4) shows the existence of water pools on reclaimed lands.
- c) Fig.6 and Fig.7 show Toyohashi Harbor. Band 7 (Fig.6) also shows the state of reclaimed lands very well.
- d) The history and the state of each reclaimed land are now under investigation.
- e) Furthermore, it is planned to make comparison of the ground truth with CCT data.
- f) Classification of natural coastlines will be made by using CCT.

4. Significant Results

It was found in the band 7 that the image density of some parts of reclaimed lands had the same density with that of the sea. (Fig.4 and Fig.6) It will be solved by making a CCT analysis.

5. Publications

No.

6. Problems

No.

7. Data Quality and Delivery

Band 4 and band 5 are of worse quality than band 7. Images of the same quality would be desirable.

8. Recommendations

No.

9. Conclusions

From the results of the present qualitative analysis, it is certain that more effective results will be obtained by making a quantitative analysis.



E136-00 E136-301 E137-001 E137-301
 34-31/E136-56 N N34-30/E137-01 MSS 7 R SUN EL49 AZ129 190-3225-N-1-N-D-IL NASA ERTS E-2232-0047

N034-001

E136-301

E137-001

E137-301

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

Fig. 1

Selected test site

A; reclaimed lands

B; rias coast

C; sandy beach



E136-00 E136-301 E137-001 E137-301
 4-31/E136-56 N N34-30/E137-01 MSS 7 R SUN EL49 AZ129 190-3225-N-1-N-D-IL NASA ERTS E-2232-0047
 N034-001 E136-301 E137-001 E137-3

Fig. 2 Band 7 image

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



E136-00 E136-301 E137-001 E137-301
 4-31/E136-56 N N34-30/E137-01 MSS 4 R SUN EL49 AZ129 190-3225-N-1-N-D-2L NASA ERTS E-2232-00473
 N034-001 E136-301 E137-001 E137-301

Fig. 3 Band 4 image

5
 REPRODUCIBILITY OF THE
 ORIGINAL PAGE IS POOR



Fig. 4 Reclaimed lands at the head of Ise Bay (band 7)



Fig. 5 Reclaimed lands at the head of Ise Bay (band 4)

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

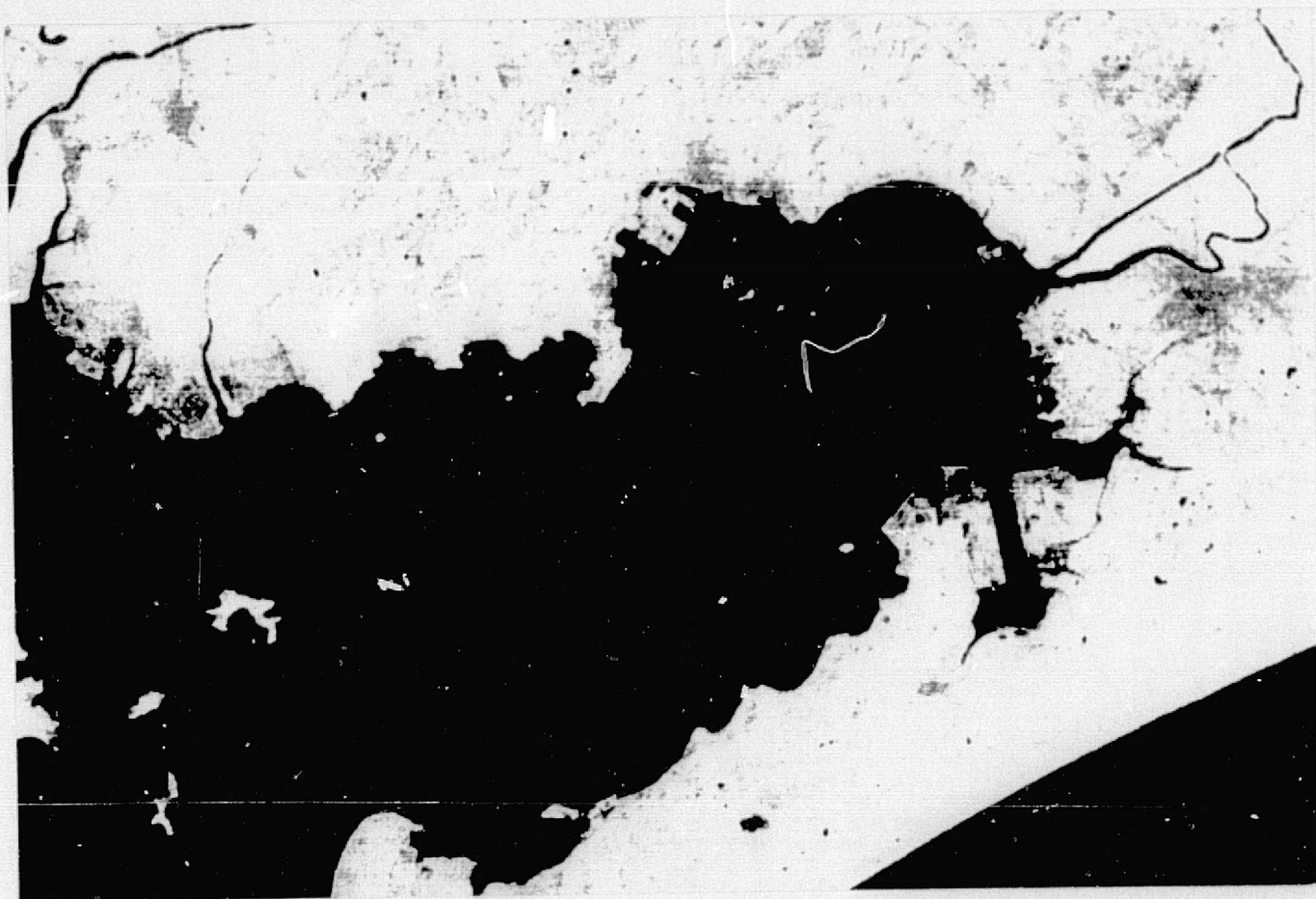


Fig. 6 Reclaimed lands in Toyohashi Harbor (band 7)

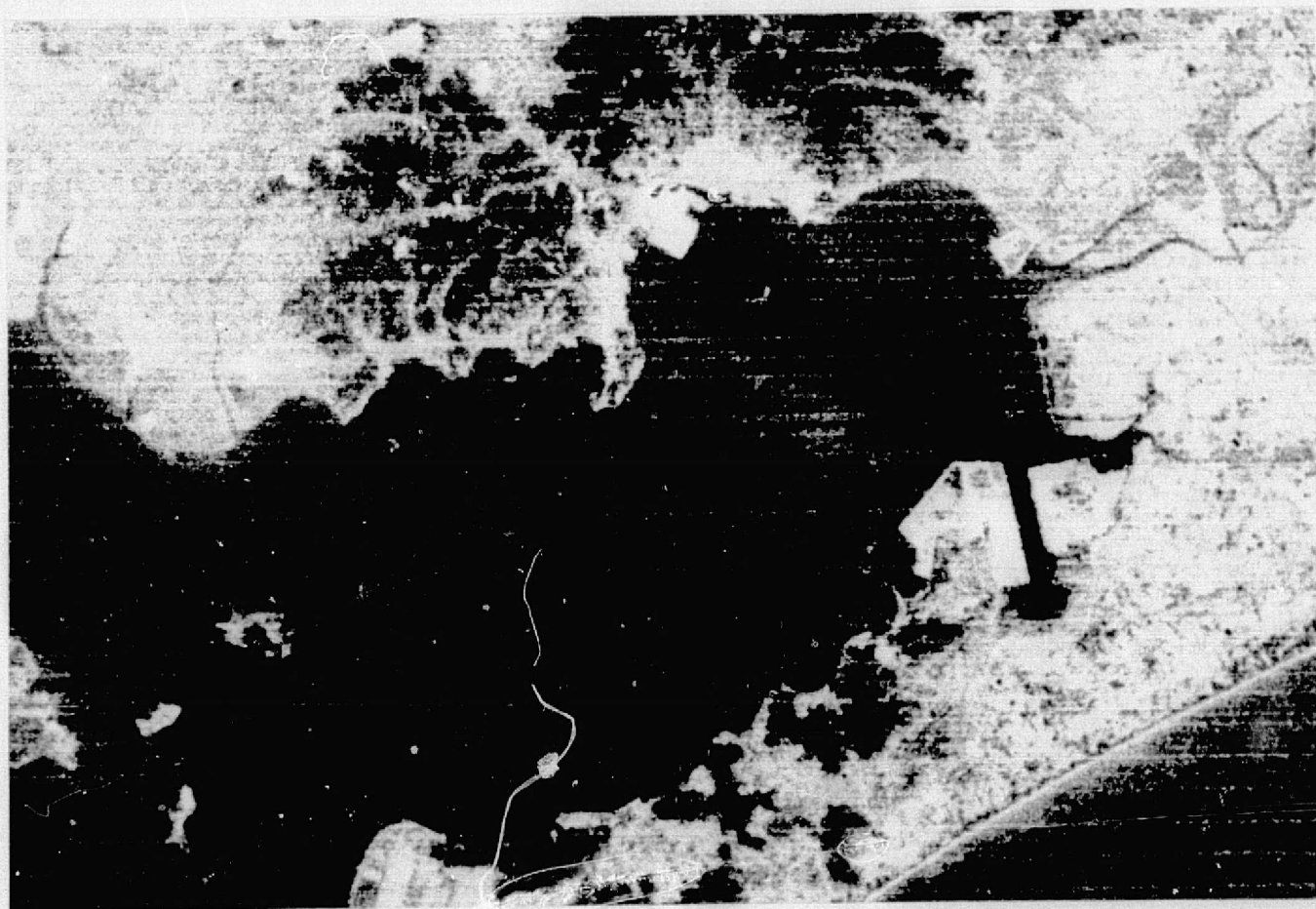


Fig. 7 Reclaimed lands in Toyohashi Harbor (band 4)